

A Systematic Strategy for Harnessing Financial Information Systems in Fighting Corruption Electronically.

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ABSTRACT

Knowledge Management (KM) is one of the hottest topics in both of the industrialized world and information research world. In our daily life, we deal with the most related systems, which were Financial Information Systems (FIS). These systems have closely linked with all aspects of administrative organizations. As a result of this link, the KM has contributed in developing FIS as attempts to harness it as part of anti-corruption strategies. This research aims to propose a systematic strategy for harnessing FIS in fighting corruption electronically. This proposed strategy demonstrates a general perceptiveness during the designing and implementing phases. The research has employed a repetitive design methodology, which comprises an extensive literature review, content and website analysis. Initially, the approach explores the key concepts of FIS, corruption strategies, and the popular approaches employed to minimize corruption. Cumulatively the systematic strategy has been proposed for enabling the FIS to minimize corruption. This research suggests that the FIS should be employed heavily in the process of minimizing corruption.

Keywords: *Financial Information System (FIS), System Quality (SQ), Information Quality (IQ), Services Quality; Anti-Corruption Strategy.*

I. INTRODUCTION

The large amount of money that the world loses every year to corruption cannot be ignored. The World Bank estimates that between US\$1 trillion to US\$1.6 trillion has been lost each year to corruption, tax evasion, bribes, inflated budgets, and illegal expenditures. Every year, developing countries lose more than US\$800 billion (Otusanya, Lauwo, & Adeyeye, 2012). Similarly, no person can imagine the large amount of money that the world spends every year on constructing and developing FIS. For instance, the World Bank has financed more than 80 FIS projects in more than 50 developing countries since 1984; these projects cost a total of over US\$2 billion (Dener, Watkins, & Dorotinsky, 2011; Rodin-Brown, 2008). Given the problems presented by corruption, searching for solutions has become necessary. It's important to determine the systematic

strategy for harnessing FIS in reducing corruption electronically. Of late, the implementation of strategy in organizations in terms of computer-based Information Systems (IS) have become a very important issue, including the financial services sector (Walsham & Waema, 1994a). A current FIS collect and treat information electronically and creates the needed reports (Walsham & Waema, 1994b). Additionally, these systems are assisting in enhancing efficiency, public responsibility and supporting good governance in corruption reduction. Although ICT contributes a lot in the corruption reduction, still the financial corruption is one of the most serious issues that affect the private and public sectors (Ali Abdulbaqi & Kamsuriah, 2012).

This research is organized as follows: First, elucidates the methodology. Second, offers background about the concepts of corruption and anti-corruption strategies. Next, constructs theoretical background about FIS and the efforts that invested to develop these systems. Then, explores the most significant strategies that contribute in reducing corruption. Finally proposes a systematic strategy for harnessing FIS in corruption reduction and the last part was the conclusion.

II. METHODOLOGY

This research proposes a systematic strategy for harnessing FIS in reducing corruption by exploring the relationship between FIS software and anti-corruption strategies. Thus, it uses an iterative design approach, which consists of three instigated techniques, namely extensive literature review, content analysis, and website analysis technique:

A. Extensive Literature Review Technique

The extensive literature review offers a good knowledge about the studies and research that utilize ICT in corruption reduction to create anti-corruption culture and transparent governmental programs. It assists in assessing the efforts to create transparency, with the assistance of ICT. The extensive review has recognized key approaches of assessment, barriers and success factors, in the area of study (Ali Abdulbaqi & Kamsuriah, 2013). This technique was not limited only with the academic literature, but it has assessed non-academic documents such as official reports, conventions, contracts, anti-corruption

agreement, and the FIS's developing guidelines. It draws a clear picture about the FIS that were established under observation of the international organizations.

B. Content Analysis Technique

This technique defines as a systematic, replicable approach for constricting massive amounts of documents into fewer content sorts according on clear rules of coding (Scott & Smith, 1995). Built on the results of the extensive literature review, the contents of a range of documentation were analyzed and identified. These documents were related to both anti-corruption and FIS such as project documents, legislation, reports, government directives and other available material. These documents have formed the basis for further developing transparent metrics, policies and directives. The technique assists in achieving the research aims.

C. Web Analytics Technique

The web analytics assist in finding the necessary information about the known financial systems such as AYCUDA, DEMFAF and other. It is not just a technique for measuring website traffic, but can be used as a tool for achieving academic researches. This technique assists in finding more information on the anti - corruption coalition as well.

The above techniques offer numerous perspectives and have provided a good background about the FIS, corruption, anti-corruption strategies and the related works in the area of study.

III. THE CONCEPTS OF ANTI-CORRUPTION

Fighting corruption is a complex task and various efforts have been taken to decrease this harmful practice. Corruption is a social pathology that strictly affects the development of a country. It can be considered as a cancer that ruins the nations in a lot number of ways. Literature has indicated that there is no precise definition of corruption. However, a definition of corruption is derived from the term called as corrupt behaviors (Carvajal, 1999). As the corrupt behaviors are diverse and the concept of corruption is very much generic, it is difficult to frame any precise and detailed definition of institutional corruption. However, generally, corruption can be defined as the abuse of public power for private benefit (Zhang, Zhang, & Society, 2009). The World Bank (September 1997), has defined corruption as : "use of public office for private gain" (Huther & Shah, 2000). The United Nations Development Program (UNDP) has defined corruption as the misuse of entrusted power for private gains. Corruption is also defined as the misuse of public power, office or authority for getting private benefit-through: bribery, cheating, activism,

favoritism, scam, speed money or misappropriation (UNDP, 2008). The acts of corruption can take many forms such as: inappropriate political contributions, abusing contradictory interests, exploiting prudence, larceny, extortion and favoritism (Lio, Liu, & Ou, 2011).The impact of corruption has made it mandatory to collaborate against it, not only at national level, but also at a local and regional level as well. The private and public organizations play a very important role in battling against the harmful process of corruption (Ali Abdulbaqi & Kamsuriah, 2011).

IV. FINANCIAL INFORMATION SYSTEM

No longer a function of FIS confined to harness the advantages of ICT in filling out some classical forms, rather it is a tool for processing accumulating, analyzing, measuring the huge amount of information. It assists in preparing, interpreting and communicating of the information used by management to plan. The FIS helps in enhancing the controlling and accountability for their resources, within an entity. Its benefits in management decision making, performance management systems and provides proficiency in financial reporting. One function of this kind of systems was the enabling administration in formulating and implementing organization's strategy. These systems also involve in the preparation of financial reports for non-management groups such as shareholders, regulators, creditor, agencies and tax authorities

FIS is a software that collects and analyzes the information of finance to participate in the running of the business and supporting the decision makers. It helps the management of finance by recording and processing the accounting transactions within numerous of functional modules such as accounts payable, accounts receivable, payroll and balance. FIS refers to the automation process of public expenditure management, including budget preparation, budget execution and accounting with the help of a fully integrated financial management system, especially in governmental ministries and other spending agencies(Khemani & Diamond, 2005). These systems are also known as Government Financial Management Information System (GFMIS), Accounting Financial Management Information (AFMIS) or Integrated Financial Management System (IFMS) (Dener et al., 2011; Khan & Pessoa, 2010).The FIS consist of two essential modules, the core module and the extended module (Ali Abdulbaqi & Kamsuriah, 2011; Balcer et al., 2004; Børresen & Pascal, 2002; COSIO-PASCAL, 2006; Khemani & Diamond, 2005). The extended module comprises numerous sub financial systems such as general ledger as an essential portion of the accounts of payable and receivable. Cost management, financial

reporting, fund management was playing a vital role in the extended financial system model. It also comprises another integrated systems that act as independent systems with the core system such as inventory and property management, payroll and the budget formulation system. It in comprises expenditure systems such as procurement information systems and the revenue systems such as tax systems and customs (Rodin-Brown, 2008). These systems assisting in authorizing budget tracking and monitoring actual cash flows. It assists in managing key assets such as vehicles, buildings, equipment, land, and other state resources. Thus, it has paved the ways for anti-corruption reforms and enhancing accountability, transparency, encouraging decentralization by enabling local planning and decision-making (Balcer et al., 2004). It's worthy to mention the efforts of developing FIS, where the large amounts of money spent in this area. During the past three decades, the international donor organizations, such as the Inter-American Development Bank (IDB), the World Bank, and USAID have implemented FIS in developing countries. They have financed significant efforts to broaden the strategies of the anti-corruption programs and reform public management (Balcer et al., 2004). Recently literatures have concentrated on the endeavors harnessing ICT as a vital player in the corruption reduction such as utilizing social media, adapting the Internet applications, investing e-Government innovations and harnessing mobile technology.

Using FIS in corruption reduction enables growing economic and assists in reducing poverty. It assists in controlling revenues and public expenditure (Hillman, 2004). To a greater extent, as the vital element of worthy financial governance, the nations have been focusing on the utilizing of ICT in their doings to strengthen their improvement procedures with the transparency (Khemani & Diamond, 2005). Most of them have planned to utilize these FIS systems in the revenues and expenditures (J. Bertot, P. Jaeger, & J. Grimes, 2010). They panning to harness some of the FIS systems in managing financial activities and in the corruption reduction such as Tax Information System, Procurement Information Systems, and Debt Management and Financial Analysis Systems (DMFAS).

V. THE EXISTING STRATEGIES OF ANTI CORRUPTION

The world is suffering from the grim hands of corruption, in several facets of our lives, this issue has heavily motivated in implementing anti-corruption strategies to fight against corruption and generate the agencies concerned with anti-corruption strategy in

both, private and public sectors. Even though different countries have different anti-corruption strategies, few general strategies are accorded by the institutions and individuals (Matei & Matei, 2011). It is noteworthy that, in September 1997, the *first anti-corruption strategy* has been created by the World Bank to address corruption by preventing fraud and to help countries in fighting corruption (J. Bertot et al., 2010; Huther & Shah, 2000). This research discusses the most common strategies of anti-corruption, which are the administrative reform strategy, law enforcement strategy and social change strategy.

The administrative reform strategy focuses on enhancing the quality of government bureaucracies and the structure exists to formally scrutinize performances of government (J. Bertot et al., 2010). Along with the inclusive organizational reforms the FIS can decline corruption by reducing systemic hurdles, increasing transparency and rise the opportunity of detection (Grönlund, 2010; Shim & Eom, 2009).

Law enforcement strategy is an associated part of the administrative reforms that guarantees suitable system for punishing the corrupt. It has greatly risen the conceivable punishment for taking bribes (S. Kim & Cho, 2005). Prosecution of corrupt teaches a hard lesson to all officials and it also clarifies and strengthens the expected standards of attitude for government employees. FIS assist in providing evidence against corrupt people by recording all financial transactions with the related documents.

The social change strategy is grounded on the idea of reformatting the social assent of the citizens. It aims to allow citizens to participate and contribute in the activities of institutional reform. ICT components were assisting in social changes by cultivating a civil society and law based society as a long-term restraint to corruption by benefiting from the social networks and the asocial media (J. Bertot et al., 2010; J. C. Bertot, P. T. Jaeger, & J. M. Grimes, 2010; Grönlund, 2010). These social processes and practices are conducted by the interactions among various key players or stakeholders such as: financial institutions, business associations, unions, social activists, shareholders, customers, intermediaries, investors, suppliers and academic institutions (Seongcheol Kim, Kim, & Lee, 2009). Ultimately the citizens can protect themselves from corruption by changing the cultural attitudes that influence them to accept corruption (J. Bertot et al., 2010).

VI. THE PROPOSED STRATEGY

In order to develop an electronic anti-corruption strategy, it is vital to understand the definition of strategy. Strategy is a plan that is proposed to accomplish a specific purpose. It is defined as the

process of planning something or putting a plan into operation in a skillful way (Cooper, Ruefli, & Wilson, 2012). The origin of the concept of strategy can be traced back through history, initially as a military concept, which refers to the skill of planning the movements of armies in a battle or war. The application of a structured strategy in a business and governmental context can be traced back to the early 1970's. Other definitions include the concept of

competition, where the aim of a strategy is to gain a competitive advantage in the market. In several definitions, the concept of determining long - term goals (Hax & Majluf, 1988). The strategy of anti-corruption is one of the most popular strategies, in national and international levels.

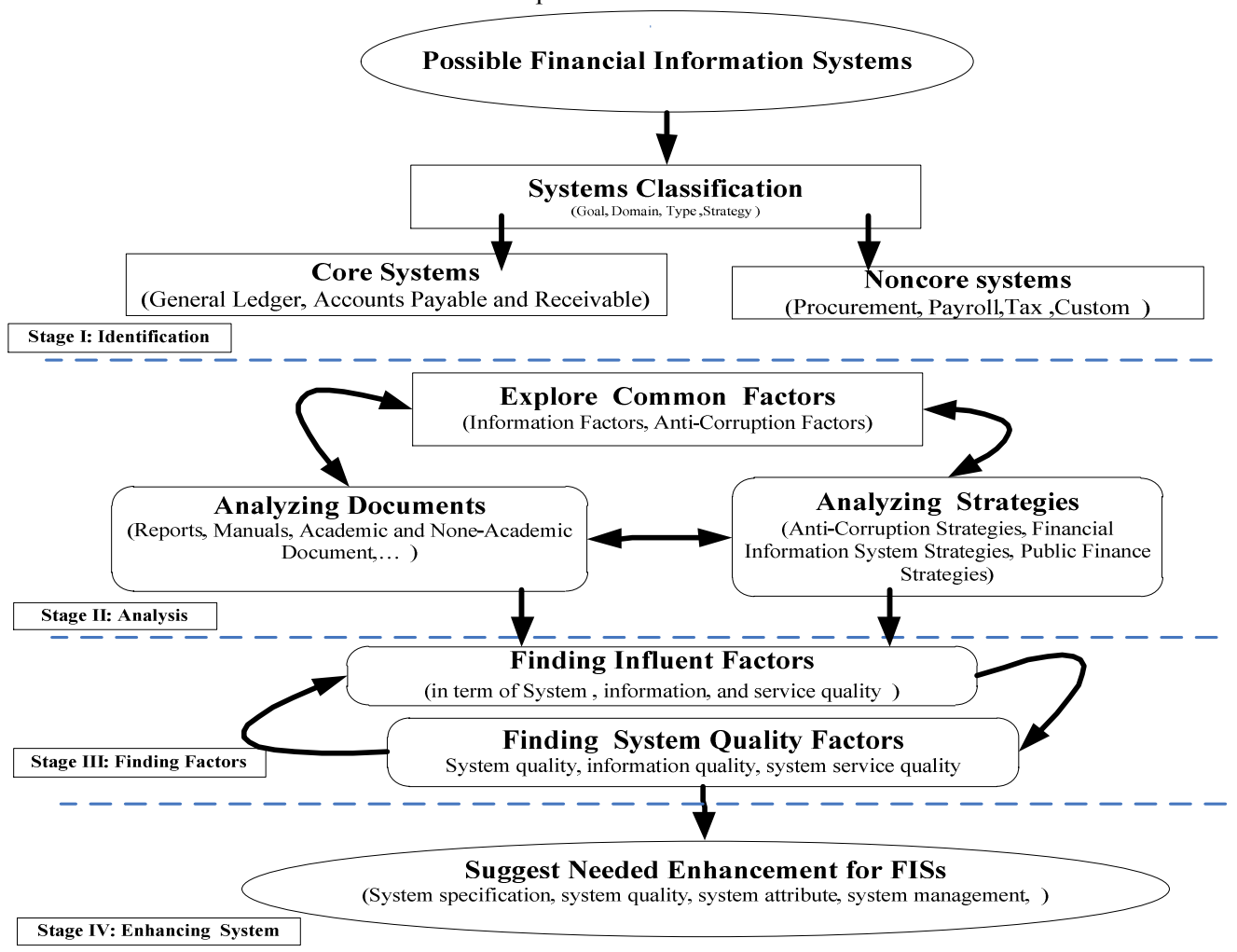


Figure 1: A Systematic Strategy for Harnessing Financial Information Systems in Fighting Corruption Electronically

Built in the literature review, the efforts to offer a unified anti-corruption strategy is uncertain to be successful, even the strategy that's designed to be implemented gradually. It is essential to make logical and potential evaluations in terms of adverse consequences of the sequence of implementation (Ali Abdulbaqi & Kamsuriah, 2013; McCusker & Criminology, 2006).

Because the close association between the concept of financial corruption and the lack of completed studies in this area, this research proposes a brief

strategy to harness the FIS in reducing the corruption of finance. Figure 1 shows a sample diagram of the safest strategy of exploiting the FIS system in corruption reduction. Current strategy comprises four essential stages such as: identification the system with FIS, analyzing common factors, finding influence factors, and enhancing the systems. Each stage, of this proposed strategy, consists of a set of elements.

The first stage is identification the system among the various FIS s. It recognizes the systems, according to system classification (goal, domain, type and

strategy). The second -stage not only examines the reports, system manuals, system guides, but also reviews the governmental and non- governmental reports, and academic and non-academic, as well. This stage attempts to analysis various to take advantage of the most related strategies in information systems, financial and corruption. The third stage guides to find the underlying factors. It focuses on finding and analyzing the FIS quality factors which namely; system quality, information quality, and system service quality. The last phase offers suggestions to improve the FIS by technically conveying these ideas to useful implementation steps. The results of these four stages are an action plan for improving the FIS's quality to empower these systems to reduce corruption.

A. Stage (I) Identification

The proposed strategy is aimed to harness FIS in reducing corruption. Thus, the main task is to set a clear classification for these systems include system goal, domain, function, system strategy and the type of the system. This stage helps in focusing on the specific system upon their characteristic. The identification should be conducted according to the following:

- The system **goals** specify what the business wants to achieve while the system descriptions define the characteristics of the system to be harnessed.
- The system **domains**, **specify** where the business of the system, in the private or public sector.
- The system **type** classifies the FIS into two types, core and noncore systems, as illustrated in Figure 1. Core Systems include General Ledger, Accounts Payable and Receivable. Whereas Non-Core systems include Expenditure systems such as procurement, payroll systems; and revenue system such a Tax and Customs systems.
- **The strategy** of the system that control the implementing each system.

B. Stage (II) Analysis

It is important to conduct the rigorous and adequate exploration of common factors and strategies, which related to the chosen system. This stage focuses on analyzing documents and strategies.

- *Analyzing documents*, occasionally, one will be reviewing various kinds of documents such as governmental reports, non-governmental reports, academic, and non-academic. It is an account of the related topics published by recognized scholars and researchers.
- *Analyzing strategies* are conducting to finding common factors among various strategies. This stage is carefully aimed at studying and

identifying the related strategies. In this stage, the analogous strategies such as FIS strategies, public finance strategies and anti-corruption strategies should be considered. It is important to analyze the strategies of the anti-corruption, based on the corrupt nature. It's critical to repeat this step with exploiting the strategies, which have been included among the documents of the countries' own strategies, international organizations and the donor agencies. Hence a successful anti-corruption strategy, should attempt to understand the complex interactions that mostly exist among the individuals or organizations, who involve in corrupt acts (Ali Abdulbaqi & kamsuariah, 2013; McCusker & Criminology, 2006).

C. Stage (III) Finding Factors

This stage depends on the result of previous stages. It consists of two sub stages, which aimed to find common contributing factors and finding system quality factors:

- **Finding Common Influential Factors:** in this sub stage, it has to identify the key factors that influence corruption reduction, which has been included in the strategies of FIS and the anti-corruption. In the next step, the common factors must be extracted from the both kinds of strategies. For instance, the transparency factor can be regarded as a common factor, because it has been identified in anti-corruption strategies and FIS strategies.
- **Finding System Factors:** This sub stage aims to interpret the finding common influential factors into a concept of information systems, from the perception of system software engineering. Thus, each factor should be analyzed into sub factors. For example, the transparency can be technically interpreted, by increasing the ability of the system to access the information and increase the availability of information, which assists in the realization of transparency. Then, this factor should be grouped under the main information systems' dimensions such as: system quality, information quality, system service quality.

D. Stage (IV) Suggest Enhancements

The last stage is aimed to provide the necessary suggestions to enhance the quality of the FIS in reducing corruption. Enhancing the system quality is mandatory for improving the system attributes such as: accessibility, availability, auditability, monitoring, controlling, tracking and timeliness. Similarly to improve information quality and system service quality, their related attributes should also be improved. It is crucial to improve the accuracy,

consistency of information and information completeness. Likewise, these factors and their attributes should be taken into account during all the life cycles of the system project, from the stage of planning and preparing the specifications, until the execution and management stages.

VII. CONCLUSIONS

The FIS systems play a very focal role in financial management, which are the significant portion of the massive institutional management. Therefore, it has been concluded that the FIS can become the significant key components of a broader strategy of the anti-corruption. Built on the discussing of the corruption and anti-corruption and their strategies, this research reveals that there are attempts of exploiting ICT to reduce corruption, by adapting internet application, improve e-Government and harnessing social media. It reveals that the use of FIS in the fields of customs, tax, procurement, and the

debt management can be assisted in reducing financial corruption. Finally, a systematic strategy for harnessing FIS in corruption reduction has proposed. As a future research, we have planned to investigate the role of individual FIS in corruption reduction. In the financial reform strategy, constructed by the revolutionary changes in science and technology, the employment of FIS can bring more transparency, auditing, controlling into the public financial administration. Although this proposed strategy has been evaluated by practitioners and academics in the financial fields and information systems fields, it needs to simulate in selected organizations. This research can provide a better understanding of the FIS, within knowledge management processes, and it contributes in developing FIS systems as an attempt to harness these systems as part of anti-corruption strategies.

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